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| Plenary | | | ECC(14)025 Annex 14 |
| 36th Meeting | |  | |
| Cluj-Napoca, 11th – 14th March 2014 | |  | |
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| Summary: | | | |
| This document proposes an ECC Statement on the outcome of the recent workshop on Spectrun Occupancy Measurements. It is based on Annex 2 of ECC(14)008 Annex 04 Rev1,m with mofifications shown in Track Changes based on the advice of the Plenary at its afternoon session on 12th March.  It is proposed to publish this as a stand-alone document on the ECC Website. Reference and links to this statement will be made from the ECC Newsletter, and the reporting of this ECC meeting. A separate item will also be placed on the front page of the website linking to the statement. | | | |

**ECC Statement on Spectrum Occupancy Measurement**

The ECC held a workshop “How Measurement of Spectrum Occupancy can help Spectrum Management” on 15 January 2014, in Mainz (Germany). The motivation for the workshop is the growing interest in the role of spectrum monitoring as a possible indicator of potential opportunities for more [efficient/intensive] use of the spectrum. Amongst current initiatives is the ‘Microsoft Spectrum Observatory’; the ECC provided this opportunity to discuss with all interested parties from administrations and companies the state of the art with spectrum monitoring in this role, and how much it could potentially help frequency regulators

**With regard to the Spectrum Occupancy Measurement for Spectrum Management ECC states that**:

1. It is essential to understand the problem to be investigated in detail.
2. The measurement parameters such as bandwidth, scanning speed and antenna location have to be set according to the radio services and applications in a specific band as well as the expected technologies in use. The measuring approach (fixed or mobile/nomadic, number of measurement points to achieve required geographical resolution) has to be tailored depending on the questions to be answered.
3. High-quality measurement equipment and often the use of filters are essential to prevent intermodulation and hence fake emissions.
4. As it stands today, the data collection component of the "Microsoft Spectrum Observatory" can only provide limited complimentary information to frequency management because it provides no more than a general indication of the spectrum usage.
5. The results of occupancy measurements done with this approach at a limited number of fixed locations could only help to identify possible bands that might be identified for white space applications. The decision whether a particular frequency can be used at a certain location, e.g. as part of dynamic spectrum access or in relation to geo-location databases, cannot be drawn from these measurement results.
6. PMSE, SRD and RFID equipment as well as satellite applications illustrate why single low-cost sensors are not sufficient to show the reality in a frequency range from 30 MHz to 6000 MHz. To give a detailed inventory of the spectrum usage in a big city, a vast amount of fixed receiving stations or other methods such as mobile data collection would be necessary.
7. The current implementation of the concept by Microsoft is prone to achieve false spectrum occupancy results. In some cases a whole band looks occupied just because the detection threshold is not adapted to the requirements of the respective sub-band, whereas bands that are used by low duty cycle or frequency hopping systems will look completely free because the scanning speed is too low or not enough samples are taken on each frequency.
8. The perception of 100% loading of some bands and of empty bands as presented during the Workshop by Microsoft is unreliable and could lead to disinformation of decision makers.
9. Similar systems of other vendors also using simple sensors at fixed locations at rooftop level would suffer from the same challenges.

**ECC further states that** the workshop provided a valuable opportunity to set out some basic requirements for the relevant use of spectrum monitoring for use in spectrum management planning. It exposed a variety of current and possible future approaches, including several based on the use of normal deployments of mobile devices and vehicles to collect large quantities of data for analysis. The ECC would expect to maintain a keen interest in these approaches as they are developed over time to meet the relevant standards of rigour on issues such as calibration.